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EXPLAINING QUALITY OF LIFE WITH CRISIS THEORY

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SUMMARY

Based on the premises of crisis theory, we expected cancer patients in-crisis to report a poorer quality of life (QL) and cancer patients post-crisis to report a similar level of overall QL in comparison to healthy individuals. To explain these hypothesized findings, we expected the coping resources and strategies of patients in-crisis to be equally effective and those of patients post-crisis to be more effective as compared to those of healthy individuals.

The sample consisted of: (a) 217 consecutive cancer patients in the acute phases of their illness (patients *in-crisis*); (b) 192 disease-free cancer patients (patients *post-crisis*); and (c) 201 randomly selected healthy individuals. Established measures of QL, self-esteem and neuroticism (coping resources) and coping behavior (coping strategies) were mailed. As expected, patients in-crisis reported a poorer QL ($p < 0.001$) and patients post-crisis a similar overall QL as compared to healthy individuals. There were no significant or systematic differences between the mean levels of coping resources and strategies between the respective groups. Two-way analysis of variance indicated a group X coping resource interaction effect on overall QL for self-esteem ($p < 0.01$). As expected, the amount of variance of overall QL explained by self-esteem was largest for patients post-crisis (27%) and comparable for patients in-crisis and healthy individuals (10 and 11%). Patients in-crisis were not able to make their coping resources and strategies more effective, whereas patients post-crisis seemed to have enhanced the effectiveness of self-esteem in restoring their QL as compared to healthy persons. Copyright © 2002 John Wiley & Sons, Ltd.

Researchers in the area of quality of life (QL) have frequently documented that patients experience an impaired QL immediately after hearing a severe diagnosis. This ubiquitous finding confirms our common sense idea of how one would feel when confronted with a diagnosis such as cancer. Another recurrent finding is that patients with a life threatening disease or disability learn to adapt to their condition and as a consequence report a level of QL similar to or sometimes even better than that of less severely ill patients or healthy individuals in subsequent phases of the disease (Andrykowski *et al.*, 1993; Breetvelt and Van

Dam, 1991; Albrecht and Devlieger, 1999; Cassileth *et al.*, 1984; Groenvold *et al.*, 1999; De Haes and Van Knippenberg, 1985). This latter finding is less self-evident. We do not fully understand why patients in acute phases of their disease, e.g. after hearing a cancer diagnosis, experience an impaired QL while patients in subsequent phases of the disease trajectory might experience a level of QL comparable to that of healthy individuals. The explanation of these returning findings is the focus of this paper.

A number of theoretical frameworks have been presented to help understand such results. The theory adopted in this paper is crisis theory. The diagnosis of a severe illness such as cancer has been found to be perceived as a crisis (Breetvelt and Van Dam, 1991; Weisman and Worden, 1976/77; Ward *et al.*, 1992). Crisis theory contends that a crisis occurs when the difficulty and importance of a problem are larger than the resources

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available to deal with it (Caplan, 1964). This theory presupposes a homeostatic equilibrium that will be disrupted and discontinued in times of crisis. A crisis is temporary, has a sudden onset, and evokes emotional tensions that need to be resolved. The theory asserts that a crisis will disturb the normal balance between the perception of problems and the coping resources and strategies. The habitual equilibrium-restoring actions that had served the person in the past now fail. This will adversely affect QL. For example, a high level of self-esteem and problem solving skills are expected to be positively related to QL. In times of crisis, the use of such coping resources may be ineffective in restoring the QL for two reasons. The problem solving capacity might not be larger than usual and/or the effect of the problem solving capacity might not be stronger than it commonly is. Clearly, the problem solving capacity needs to be larger or needs to exert a stronger effect to face the crisis. Thus, it is expected that the QL of patients in-crisis will be impaired. Conversely, cancer patients who have learned to adapt to their condition may in fact have learned to strengthen their coping resources and strategies to use these more effectively. Consequently, their overall QL may not be impaired despite possible physical and psychosocial restrictions.

Traditionally, crisis theory has been applied to treatments of acute states, such as patients in need of emergent or intensive care (Shaw and Halliday, 1992) mental health care (Shaw and Halliday, 1992) and psychiatric care (Hobbs, 1984; Szmulker, 1987). Additionally, crisis theory formed the basis of interventions with families of critically ill people (Woolley, 1990) and with professionals dealing with psychosocial stresses, for example in oncology care (Sparks, 1988). A few studies have used crisis theory as a framework to examine experienced QL. For example, Ward *et al.* (1992) investigated the psychological distress experienced by 38 women with stage I/II breast cancer at completion of adjuvant therapy. However, this and other studies have not empirically tested hypotheses originating directly from crisis theory in cancer patients.

The current study was designed to explain differences and similarities in perceived QL between cancer patients in acute phases of their illness (patients *in-crisis*) and healthy individuals, and between disease-free cancer patients in later phases of their illness (patients *post-crisis*) and healthy individuals. Two hypotheses were formu-

lated. First, to test the premises of crisis theory, we expected cancer patients in-crisis to experience a poorer QL, irrespective of the particular domain, in comparison to healthy individuals. We additionally expected cancer patients post-crisis to experience a similar level of overall QL and psychological functioning (Singer *et al.*, 2000) but to report poorer levels of physical functioning as compared to healthy individuals. The second hypothesis was targeted at the explanation of these expected levels of QL according to crisis theory. We hypothesized that the QL of cancer patients in-crisis is impaired because their coping resources and strategies are not more effective than those of healthy individuals. The ineffectiveness of coping of patients in-crisis may be caused by their inability to enhance the use of coping resources and strategies or alternatively, by their inability to make the existing coping resources and strategies more effective in comparison to healthy individuals. We additionally expected the coping resources and strategies of patients post-crisis to be more effective in comparison to those of healthy individuals.

METHOD

Participants

The first group, labeled *patients in-crisis*, were patients who were 18 years or older, in the acute phases of their illness, and under active treatment. The first subgroup consisted of newly diagnosed cancer patients who had undergone surgery for a malignancy for the first time and who had been discharged from the hospital in the previous week. The other subgroup was receiving chemotherapy. These patients were consecutively selected by their attending physicians or nurses in their third treatment cycle. The patients were heterogeneous with regard to tumor type. Seventy-two percent of the 152 approached surgery patients and 81% of the 133 approached chemotherapy patients participated ($N=217$). The largest tumor groups included breast cancer (32%), gastro-intestinal cancer (16%), gynaecological cancer (15%), and haematological cancer and lymphoma (13%).

The second group of cancer patients were 18 years or older, and disease-free for a period of three years or longer. Since these patients had experienced a crisis previously, they are referred to

as *patients post-crisis*. They were approached via two different routes. Eligible patients were asked to participate when they attended the outpatient departments of collaborating specialists. Additionally, patients were selected on the basis of patient files of collaborating general physicians. These patients were also heterogeneous with regard to tumor type. The patients enrolled via these two routes did not differ with respect to clinical and background characteristics (data not shown) and were therefore combined. Eighty-six percent of the 224 approached patients participated in the study ($N=192$). The largest tumor groups consisted of breast cancer (30%), gastro-intestinal cancer (16%), gynaecological cancer (15%), and urological cancer (9%).

The third group, the *healthy reference group*, was selected by means of a random sample taken from the telephone directory in the same regions as those of the patients. Subjects were called and, if 18 years or older and willing to participate, were mailed the research material. Seventy-two percent of those 279 approached, completed and returned the questionnaire ($N=201$).

We mailed participants a letter to explain the aim of the study, signed by their surgeon, oncologist or GP (in case they were patients), a questionnaire (see measures), and a return envelope.

Measures

Quality of life. Measures of affect are more sensitive to changes in external circumstances than measures of cognition (e.g. satisfaction) (McKenel, 1978; Miachalos, 1980; De Haes *et al.*, 1987; 1992; De Haes, 1988). Overall QL was therefore defined as the global evaluation of the good ('affective') character of a person's life (Szalai, 1980). The wording of the question was: 'How good did you feel, taking things together, during the past week?' A seven-point Likert scale was employed ranging from very good to very bad. Physical and psychological distress were measured with the physical and psychological distress scales of the Rotterdam Symptom Checklist (RSCL) (De Haes *et al.*, 1990). In our subjects, Cronbach's alpha was 0.82 and 0.88, respectively. Role activity refers to activities, such as doing household chores and participation in activities outside the house. These were measured by five items adapted from the Activities of Daily Living scale from the Dutch

Life Situation Survey (Centraal Bureau voor de Statistiek, 1983). Cronbach's alpha was 0.92.

Coping resources and strategies. Following Stewart (1980), we define the term 'coping resources' as contextual characteristics which include *personality*. Two personality characteristics were examined: self-esteem and neuroticism. Self-esteem was measured with the Rosenberg self-esteem scale (Rosenberg, 1965) (Cronbach's alpha 0.81) and neuroticism with the neuroticism subscale of the Dutch Personality Inventory (Luteijn *et al.*, 1975) (Cronbach's alpha 0.82). Coping strategies were assessed with an adapted version of the coping behavior questionnaire devised by Weisman and Worden (1976). All items employed a four-point response scale ranging from never to often. On the basis of factor analyses, the following scale structure was employed: information seeking (5 items, alpha 0.74); acquiescence (4 items, alpha 0.68); escapism (3 items, alpha 0.69); and irrational behavior (2 items, alpha is 0.57). Additionally, four individual items refer to: substance abuse, social withdrawal, blaming others, and blaming oneself.

Statistical analyses

Comparison of QL. The differences in mean overall QL, physical and psychological distress, and role activity are compared using independent *t*-tests between cancer patients in-crisis and healthy individuals and between patients post-crisis and healthy individuals. To examine the magnitude of these differences, effect sizes were calculated based on standardized differences between mean scores. Following Cohen (1988), effect sizes of 0.20, 0.50, and 0.80 were considered small, moderate and large, respectively.

Effectiveness of coping resources and strategies. We first compared the use of coping resources and strategies between the respective subgroups. We tested the differences in mean coping between cancer patients in-crisis and healthy individuals and between patients post-crisis and healthy individuals with independent *t*-tests. Again, effect sizes were calculated for the variables that achieved statistical significance.

We then investigated the effectiveness of coping resources and strategies by examining the relationships between coping and overall QL.

Two-way analyses of variance on overall QL were conducted with the factors 'group' and 'coping'. The main effects of coping provide an indication of the strengths of their relationship with overall QL. The interaction effect between group and coping on overall QL indicates whether the strength of the relationship between coping and QL depends on the group. In case of significant interaction effects, Pearson Product Moment correlation coefficients were calculated between coping and overall QL. We hypothesized that for patients in-crisis this correlation will not be higher than that for healthy individuals, whereas we expected this correlation to be higher for patients post-crisis. To adopt a conservative level of significance, the alpha level was set at 0.01.

RESULTS

On average, patients in-crisis were 54 years ($SD=15.2$), patients post-crisis 61 years ($SD=14.9$), and healthy individuals 45 years ($SD=16.2$). The percentage of females in the three groups was 70, 67 and 60%, respectively.

Comparison of QL. As expected, patients in-crisis reported significantly lower levels of overall QL and role activity, and higher levels of physical and psychological distress in comparison to the healthy reference group (Table 1). Effect sizes ranged from 0.33 to as high as 1.54. According to expectation, patients post-crisis reported comparable levels of overall QL and psychological distress in comparison to healthy individuals. As expected, they reported a significantly higher level of physical distress (effect size 0.54) and a lower level

of role activities (effect size 0.70) than healthy individuals.

Effectiveness of coping resources and strategies. Table 2 depicts the coping resources and strategies used by the three subsamples. With regard to *personality*, there were no significant differences between the mean levels of self-esteem and neuroticism between the respective groups. With respect to *coping behavior*, patients in-crisis reported higher levels of acquiescence and escapism than healthy individuals. Patients in-crisis also had lower levels of social withdrawal, blaming others and themselves. Effect sizes were moderate to large (range: 0.53–0.77). Patients post-crisis also reported higher levels of acquiescence and escapism and lower levels of blaming others and themselves than healthy individuals. They additionally reported a lower level of information seeking behavior. Effect sizes were small to moderate (range 0.32–0.57).

To test the hypothesis regarding the effectiveness of coping resources and strategies, we first examined the relationships between coping and overall QL (see Table 2, fourth column). Certain aspects of coping behavior did not have a main effect on QL, such as information seeking behavior, acquiescence, escapism, irrational behavior, and blaming oneself. Conversely, self-esteem and neuroticism as well as the remaining coping behaviors were found to exert a main effect on QL.

Second, the interaction effect between coping and group was significant ($p<0.001$) for self-esteem (Table 2, last column). The relationship between self-esteem and overall QL was $r=0.32$ for patients in-crisis, $r=0.52$ for patients post-crisis, and $r=0.33$ for healthy individuals (all $p<0.001$). Thus, self-esteem explained respectively 10, 27, and 11% of the variance of overall QL.

Table 1. Quality of life (QL) of cancer patients in-crisis, cancer patients post-crisis, and healthy individuals

	Cancer patients in-crisis ($n=217$)		Cancer patients post-crisis ($n=192$)		Healthy individuals ($n=201$)	
	M	SD	M	SD	M	SC
Overall QL ^a	5.24 ^b	1.2	5.62	1.2	5.73	1.0
Physical distress	27.88 ^b	7.0	24.57 ^b	6.0	21.73	4.4
Psychological distress	16.57 ^b	5.5	16.06	5.6	14.84	4.9
Role activity	12.50 ^b	5.1	16.40 ^b	4.2	18.89	2.8

^a A higher score indicates a higher level of the indicated aspect.

^b Comparisons between cancer patients in-crisis versus healthy individuals, and cancer patients post-crisis versus healthy individuals: $p<0.001$.

Table 2. Coping resources (personality) and coping strategies (coping behavior) of cancer patients in-crisis, cancer patients post-crisis, and healthy individuals, and their effect on overall quality of life (QL)

	Patients in-crisis (<i>n</i> = 217) <i>M</i> (SD)	Patients post-crisis (<i>n</i> = 192) <i>M</i> (SD)	Healthy individuals (<i>n</i> = 201) <i>M</i> (SD)	Main effect on QL ^b <i>p</i>	Interaction effect on QL ^b <i>p</i>
Personality ^a					
Self-esteem	35.2 (6.1)	34.6 (6.7)	35.5 (5.9)	<0.001	<0.001
Neuroticism	16.7 (4.6)	17.2 (5.4)	16.3 (4.7)	<0.001	n.s.
Coping behavior ^a					
Information seeking	13.2 (3.1)	11.6 (3.1)**	12.7 (3.2)	n.s.	n.s.
Acquiescence	11.6 (2.6)**	11.6 (2.7)**	10.2 (2.3)	n.s.	n.s.
Escapism	11.1 (2.7)**	10.5 (2.6)**	9.7 (2.4)	n.s.	n.s.
Irrational behavior	3.6 (1.6)	3.9 (1.7)	3.6 (1.3)	n.s.	n.s.
Substance abuse	1.6 (0.9)	1.5 (0.8)	1.6 (0.8)	<0.001	n.s.
Social withdrawal	1.4 (0.7)**	1.7 (0.9)	1.8 (0.8)	<0.001	n.s.
Blaming others	1.2 (0.5)**	1.3 (0.6)**	1.6 (0.7)	<0.01	n.s.
Blaming self	1.2 (0.6)**	1.3 (0.7)**	1.7 (0.7)	n.s.	n.s.

^aA higher score indicates a higher level of the indicated aspect.

^bTwo-way (group \times coping) analyses of variance on overall QL: main effect of coping and interaction effect of group \times coping.

*Comparisons between cancer patients in-crisis versus healthy individuals: $p < 0.01$.

**Comparisons between cancer patients in-crisis versus healthy individuals, and cancer patients post-crisis versus healthy individuals: $p < 0.001$.

DISCUSSION

The current study substantiates the hypotheses derived from crisis theory. Based on its premises, patients in the acute phases of their disease trajectory indeed reported significantly more QL impairments than healthy individuals. Additionally, patients post-crisis reported a similar level of overall QL and psychological distress and more physical distress and role activity impairments in comparison to healthy individuals. Inspection of Table 1 shows that the mean scores of patients post-crisis lie in between those of patients in-crisis and healthy individuals.

While these findings are not unexpected and frequently documented, crisis theory was particularly useful in explaining why patients report these levels of QL. With respect to the use of coping resources, they do not differ in personality and they do not differ systematically in the use of coping strategies, but they adopt some strategies more and others less frequently. Additionally, self-esteem explained an equal amount of the variance of overall QL for patients in-crisis in comparison to healthy individuals. As expected, this amount was substantially larger for patients post-crisis than for healthy individuals. Thus coping of the

patients in-crisis was found to be the least effective of all groups. This ineffectiveness of coping was caused by both the patients' inability to enhance the use of coping resources and strategies, and their inability to make the existing coping resources more effective. Patients post-crisis also did not enhance the use of coping resources and strategies. For example, they did not have a higher level of self-esteem than the other participants. However, a higher level of self-esteem was more strongly related with a higher level of overall QL. These patients may have thus succeeded in making their self-esteem more effective in restoring their QL. This finding may explain why their overall QL was not impaired as compared to healthy individuals. This result also emphasizes the importance of measuring personality. Since global QL was found to be substantially related to self-esteem, the stability of life quality may be attributed, in part, to personality (Costa and McCrae, 1980). Patients who have a high level of self-esteem seem to be better able to maintain appropriate levels of QL, even in times of crisis, but certainly thereafter.

A number of limitations of the current study merit attention. First, the cancer patients were found to be substantially older than the healthy individuals. A matching sampling strategy would

therefore have been preferred to the random selection procedure adopted for the reference group. However, it should be noted that in our study age was found to be unrelated to overall QL (data not shown). Second, we were unable to collect sociodemographic or clinical data of non-respondents. While our samples may suffer from selection bias, the high response rates (range from 72 to 85%) make this less likely. Third, while we employed validated measures with established levels of reliability and validity, three scales of the coping behavior questionnaire had marginal or less than satisfactory levels of internal consistency reliability. Moreover, the operationalisation of coping was limited in that the instrument did not contain other relevant coping strategies such as cognitive reframing or spiritual coping.

The current cross-sectional study was designed to explain differences among cancer patients in different phases of their disease trajectory and healthy individuals. Insight into the process of accommodating the illness will additionally be needed to clarify perceived QL over time. Longitudinal, theory-based research is expected to provide such insights. Crisis theory can be used as a model for understanding adaptation to illness. As stated earlier, loss of physical integrity threatens the emotional equilibrium of the individual. While this threat may have detrimental capacity, it may also provide the opportunity for personal growth (Caplan, 1964; Folkman, 1997). As we have inferred from our study, the crisis may strengthen the individual's adaptive capacity, thereby enhancing his or her level of QL. However, this adaptation needs to be made visible by examining the process over time. For example, Holahan and Moos (1990) conducted a study on psychological functioning with community-resident adults over a one year interval. As predicted by crisis theory, they found that those who were able to strengthen their coping resources experienced improved functioning, even after periods of intense negative life change.

In addition to crisis theory, a number of other theoretical frameworks may be useful in explaining adaptation processes, including judgment theories such as Helson's adaptation level theory (Helson, 1964; De Haes and Van Knippenberg, 1985; Brickman *et al.*, 1978; Parducci, 1995) and social comparison theories (Festinger, 1954; Taylor and Lobel, 1989; Van der Zee *et al.*, 1995); control theories (Powers, 1978) such as the self-regulation theory (Carver and Scheier, 1982; Leventhal and

Nerenz, 1983); discrepancy theories (Calman, 1984; Michalos, 1985); uncertainty in illness theory (Mishel 1988; 1990; Padilla *et al.*, 1992); stress-coping theories (Lazarus and Folkman, 1984; Folkman, 1997); and response shift theories (Breetvelt and Van Dam, 1991; Howard *et al.*, 1979; Golembiewski *et al.*, 1976; Sprangers and Schwartz, 1999). While these theories vary widely in level of abstraction and breadth of coverage, they make important and convincing attempts to explain changes in perceived QL. Since the theories focus on different aspects of the adaptation process, they may be viewed as complementary. For example, response shift, involving changes in internal standards, values and the conceptualization of QL, is considered to be an important mediator of the adaptation process. The theory is not meant to replace other theories that purport to explain changes in perceived QL. Rather, to the extent that response shift is demonstrated to have explanatory power, its incorporation is recommended in such existing theories (Sprangers and Schwartz, 1999). We strongly advocate taking these and other theories as frames of reference for empirical studies. Research that is designed to compare concurrently the explicatory capacity of alternative theories would take this line an important step further. Such theory-based investigations will stimulate and strengthen health-related QL research, will provide insight into the individual experience of QL, and thus help explain intriguing findings.

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